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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/996,255	11/28/2001	John H. Lieder	024/35	2968
27538	7590	01/14/2005		
KAPLAN & GILMAN, L.L.P. 900 ROUTE 9 NORTH WOODBIDGE, NJ 07095				
EXAMINER BRINEY III, WALTER F				
ART UNIT			PAPER NUMBER	
2644				

DATE MAILED: 01/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center"><b>Office Action Summary</b></p>	<p>Application No.</p> <p align="center">09/996,255</p>	<p>Applicant(s)</p> <p align="center">LIEDER ET AL.</p>	
	<p>Examiner</p> <p align="center">Walter F Briney III</p>	<p>Art Unit</p> <p align="center">2644</p>	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 September 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6,12,13,17,18,20,21 and 27-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6,12,13,17,18,20,21 and 27-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. **Claims 1-6, 13, 17, 18, 20, 21, and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang et al. (US Patent 5,987,120) in view of Albouy (US Patent 4,540,853).**

Claim 1 is limited to *a circuit for detecting a reversal in polarity*. Hwang discloses a device for detecting reversal of voltages on a telephone line (abstract). Hwang discloses a Schmidt trigger (i.e. *a Schmidt trigger connected in series with the low-pass filter*) (figure 1, element 593). Hwang discloses a low-pass filter (figure 1, elements 59,591, 592). Hwang also discloses a second Schmidt trigger (figure 1, element 58), which acts to characterize the existing line voltage, but Hwang does not disclose the construction of the Schmidt trigger. Therefore, Hwang anticipates all limitations of the claim with the exception of *a differential amplifier*. Albouy teaches the standard construction of an analog-to-digital Schmidt trigger like the one used by Hwang. The device includes a *differential amplifier* (Albouy, figure 3, element 2). It would have been obvious to one of ordinary skill in the art at the time of the invention to construct a Schmidt trigger using a differential amplifier as taught by Albouy for the purpose of implementing the polarity detection circuit of Hwang.

Claim 2 is limited to *the circuit described in claim 1*, as covered by Hwang in view of Albouy. Albouy teaches *an operational amplifier (figure 3, element 2) having a feedback loop from an output terminal thereof to a non-inverting input terminal thereof*. Therefore, Hwang in view of Albouy makes obvious all limitations of the claim with the exception of *a feedback loop from an output terminal thereof to an inverting input terminal thereof*. It is noted that the circuit of Hwang is disclosed with a non-inverting Schmidt trigger (figure 1, element 58) coupled with a NMOS transistor (figure 1, element 59). However, reversing the inputs and feedback of the Schmidt trigger and using a PMOS transistor will result in the same circuit, it is merely a reversal of internal polarity and is obvious, see *In re Gazda*, 219 F.2d 449, 104 USPQ 400 (CCPA 1955). Therefore, Hwang in view of Albouy makes obvious all limitations of the claim.

Claim 3 is limited to *the circuit described in claim 1*, as covered by Hwang in view of Albouy. Albouy teaches that *the Schmidt trigger comprises an operational amplifier having a feedback loop from an output terminal thereof to a non-inverting input terminal thereof* (figure 3, element 2). Therefore, Hwang in view of Albouy makes obvious all limitations of the claim.

Claim 4 is limited to *a method for detecting a polarity reversal in a telephony circuit*. It is noted that steps a-c of this claim are related to making the connections necessitated by the circuit of claim 1, as covered by Hwang in view of Albouy. Clearly, the connections are inherently required and as such Hwang in view of Albouy makes obvious these limitations. Furthermore, claim 4 includes the limitation of *determining polarity stasis or reversal based upon the output of the Schmidt trigger*. Hwang

discloses determining the existence of a polarity reversal by examining the output of the first Schmidt trigger (figure 1, element 593) (column 3, lines 10-14 and 36-40).

Therefore, Hwang in view of Albouy makes obvious all limitations of the claim.

Claims 5 and 6 comprise making the connections necessary for the devices of claims 2 and 3, respectively.

Claim 13 is limited to inherent properties of the circuit components of figure 1 disclosed by Hwang, thus it is rejected for the same reasons.

Claim 17 is limited to *the method of claim 13*, as covered by Hwang in view of Albouy. Hwang discloses a low-pass filter (figure 1, elements 59, 591, 592), which are used for suppressing polarity transition detections from ringing voltages (i.e. *wherein the defined time is such so as to filter out any polarity reversal induced by an incoming ring signal*) (column 2, lines 45-59). Therefore, Hwang in view of Albouy makes obvious all limitations of the claim.

Claim 18 is limited to *the method of claim 13*, as covered by Hwang in view of Albouy. Hwang discloses a Schmitt trigger (figure 1, element 593). Schmitt triggers are known to include a hysteresis effect that is selected to prevent unwanted transitions. Because the device of Hwang is designed only to detect true polarity reversals, it is inherent that the Schmitt trigger is designed to *filter out any polarity reversal caused by any of battery voltage drops, line disconnections, or loop current drops* (column 1, lines 39-42). Therefore, Hwang in view of Albouy makes obvious all limitations of the claim.

Claims 20 and 21 are essentially the same as claim 1, and are rejected for the same reasons.

Claim 27 is essentially the same as claim 17 and is rejected for the same reasons.

Claims 28 and 29 are essentially the same as claim 18, and are rejected for the same reasons.

**2. Claims 7 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang in view of Albouy and further in view of Bijman.**

Claim 7 is limited to *the method as claimed in claim 4*, as covered by Hwang in view of Albouy. Hwang discloses capacitors (figure 1, elements C1, C2) that block DC current from entering the detector. Therefore, Hwang in view of Albouy makes obvious all limitations of the claim with the exception *wherein the differential input voltage comprises DC voltage*. Bijman teaches polarity detection circuitry (figure 3). The input of the detector uses a differential amplifier, whose output is coupled to a zero-crossing detector (i.e. first Schmidt trigger of Hwang 593). Replacing the input circuitry of Hwang with that of Bijman would result in the same functionality with a reduction in components. It would have been obvious to one of ordinary skill in the art at the time of the invention to replace the input circuitry of Hwang with the more economical input circuitry of Bijman for the purpose of reducing the number of parts needed and the space and cost associated with those extra parts.

Claim 12 is limited to *the method as claimed in claim 7*, as covered by Hwang in view of Albouy and further in view of Bijman. Hwang discloses a low-pass filter (figure 1, elements 59, 591, 592) that filter out ringing polarity transitions (i.e. *further comprising eliminating voltage polarity transitions that are shorter than a defined time*) (figure 2,

graph C). Therefore, Hwang in view of Albouy and further in view of Bijman makes obvious all limitations of the claim.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-6, 12, 13, 17, 18, 20, 21, and 27-29, filed 09 September 2004, have been fully considered but they are not persuasive.

With respect to independent claims 1, 4, and 20, the applicant alleges on page 10 of their current response that components (59, 591, and 592) do not correspond to a filter; the examiner respectfully disagrees. In particular, transistor (59) does indeed prevent the voltage present at node A from appearing at node C directly. This is done as a matter of convenience in design. If gate (58) had to directly drive gate (593) and (C3) in addition to the devices coupled to node A, it would require a large amount of power and design complexity. For ease, gate (58) need only drive transistor (59), and the passive resistor (R5) easily controls the charging of (C3). With that established, it is clear that the voltage at node C is on a one-to-negative-one ratio with the voltage at node A. Furthermore, the capacitor prevents sudden charging and discharging in accordance with its time-constant.

With further respect to claims 1, 4, and 20, the applicant alleges on page 10 that the filter of Hwang does not remove high-frequencies; the examiner respectfully disagrees. The output of node C clearly indicates the removal of fast periodic transitions. Each ring pulse only generates a tiny amount of charge on the capacitor (C3). This prevents the output gate (593) from switching high. It is also noted that in

order for node C to discharge fully, the initial pulse, whether a line-reversal or ring pulse, must be of a sufficient duration.

With further respect to claims 1, 4, and 20, the applicant alleges on page 11 that there is no motivation to combine Hwang and Albouy; the examiner respectfully disagrees. In particular, Hwang did not indicate either the details of construction or specific part number for either of the Schmidt triggers, therefore, one of ordinary skill in the art would have had to find a teaching such as Albouy in order to even practice the invention of Hwang.

With respect to independent claim 13, the applicant alleges on page 10 that the circuitry of figure 1 does not filter out polarity reversals of predefined short intervals; the examiner respectfully disagrees. In particular, when a line-reversal occurs on the tip and ring lines, a pulse is output on node A. If this pulse is longer in duration than the time constant between the capacitor (C3) and the output resistance of transistor (59), a transition will occur at node C and B. Thus, if the pulse is shorter, and the capacitor (C3) does not discharge below the threshold of gate (593), no transition will occur.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not



mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter F Briney III whose telephone number is 703-305-0347. The examiner can normally be reached on M-F 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huyen Le can be reached on 703-305-4844. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WFB  
1/10/05

  
**XU MEI**  
**PRIMARY EXAMINER**